U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY,
DAIRY DIVISION.

HOW TO USE SKIM MILK.

WAYS IN WHICH THIS NUTRITIOUS FOOD MATERIAL MAY BE USED TO ADVANTAGE IN COOKERY.

There are many places in which skim milk is not used as completely as it might be. On farms there is often more than can be profitably fed to calves or pigs. In creameries much of it is made into cottage cheese, but even then the whey, which is really rich in good materials, goes to waste.

Many people do not realize how nutritious skim milk is. They imagine that because it so generally has little or no commercial value it is hardly fit for human food. As a food it is not so valuable as whole milk, and can not take the place of the latter in the diet of children. Nevertheless, skim milk can be used to great advantage in combination with other food materials, especially in cooking, and is altogether too valuable to be wasted, according to home economics specialists of the United States Department of Agriculture.

A quart of whole milk weighs 34⅛ ounces, or a little more than 2 pounds, nearly 30 ounces of which is water. The remaining solid matter contains very useful food materials. Slightly more than 1 ounce is protein, a very important muscle builder, and one of the most expensive of the substances needed by the body. About 1⅓ ounces consists of butter fat, and 1⅔ ounces of milk sugar. These two materials are used by the body to provide it with energy, much the same as fuel is used to produce steam and power in the engine. The quart of milk also contains about one-quarter of an ounce of mineral matter, small quantities of which are very necessary for the growth and general upkeep of the body.

As the fat is separated to form the cream some of the protein, milk sugar, and mineral matter go with it, but by no means all. The protein remains; therefore a quart of separator-skimmed milk provides slightly more of this indispensable and costly material than does a quart of whole milk. It contains in all about 1⅕ ounces of protein, 1¼ ounces of milk sugar, about one-quarter of an ounce of mineral matter, and a little fat, the last named depending, of course, upon the completeness of the separation. This means that, quart for quart, it would furnish the body with slightly more protein and milk sugar than whole milk does, and practically the same quantity of mineral matter, though far less fat. In other words, as a tissue builder it is equal to whole milk, and as an energy yielder not nearly so good. Since, as a rule, the tissue-building materials are contained in the more expensive foods (meat, eggs, etc.), and the energy-yielding materials can be largely provided by cheaper foods (bread and other cereal foods, fats, potatoes, etc.), it seems doubly wasteful not to use skim milk.

Those who buy milk seldom have much skim milk to use unless they follow the custom of skimming their own cream. That there is economy in so doing is shown by the following: A quart of whole milk usually sells for the same price as a half pint of cream, which contains about one-fifth ounce of protein, 1½ ounces of fat, not quite one-third ounce of milk sugar, and a very little mineral substance. If this is compared with a quart of whole milk, which very commonly can be purchased for the same sum, it will be seen that the purchaser in buying a half pint of cream instead of a quart of milk sacrifices nearly an ounce of protein, 1⅓ ounces of sugar, and one-fifth ounce of mineral matter. He gets, of course, a trifle more fat—about one-fifth ounce, or a level teaspoonful—but this is small in comparison with what is sacrificed. Some people, therefore, buy whole milk instead of cream in order to have for family use the nourishment contained in the milk after it has been skimmed. Home-skimmed milk is, of course, richer in fat than that which has been skimmed by a separator, but it can be used in the same way.

The uses of skim milk are many and in cooking it adds to quality as well as to food value. If used in place of water in bread it adds about as much protein to one pound of bread as there is in an egg. Skim milk used in place of the usual half milk and half water, of course, increases the quantity of protein in a loaf by the amount that is contained in half an egg. The saving involved in the use of skim milk in bread, however, is small compared with that involved in its use in the preparation of cereals, for, while in bread the milk is only about one-third of the flour, in the preparation of cereals the volume of milk is usually three or four times that of the cereal. To cook a cupful of cereal in 3 cupfuls of skim milk instead of 3 of water adds as much protein as that contained in 3 eggs.

There are many dishes which may be described as vegetable milk soups, usually made by combining milk and the juice and pulp of vegetables. This mixture is then thickened with flour and starch and enriched with butter or other fat. If a fire is kept all the time and the cost of fuel need not be taken into consideration, the following method is recommended as a means of utilizing skim milk: Chop the raw vegetable or cut it into small pieces. Put it with the skim milk into a double boiler and cook until the vegetable is tender. The mixture can then be thickened and enriched as described above. By this method no part of the vegetable is thrown away and the liquid of the soup, instead of being part milk and part water, is all milk. A soup so made, therefore, usually has about twice as much protein as that made in the other way, and has the additional advantage of a particularly good combination of mineral substances, for milk is rich in calcium and phosphorus, and the vegetables are rich in iron.

In making these soups use is made of many of the parts of the vegetable that are ordinarily thrown away, namely, the outer and tougher leaves of lettuce, which has a higher iron content than most other vegetables; the tops of celery; and even the tops of young onions. Small quantities of cooked vegetables left over from other meals may be utilized in these and in other kinds of soup.

If in making these soups the vegetable is chopped finely in the meat grinder, they need not be strained before being served. If the vegetable is not so chopped, the soup may be put through an ordinary strainer, or such vegetables as carrots or potatoes may be cut into slices and left in the liquid, in which case the dish resembles a vegetable chowder. These soups may be thickened with stale bread.

SOUP RECIPE.

1 quart of spinach (4 ounces).
1 thin slice of onion.
2 slices of stale bread (2 ounces).
1 quart of skim milk.

Put the spinach and onion through the meat chopper, following them by the bread, in order that there may be no waste. Put into a double boiler with the milk and cook until the spinach is tender.

There is a class of extremely valuable dishes which are sometimes called "cereal milk puddings," usually made by cooking equal volumes of a cereal (usually rice) and sugar in 12 times the volume of milk—for example, one-fourth cupful of rice, one-fourth cupful of sugar, and 3 cupfuls of milk. When a fire is kept constantly and the cost of fuel need not be considered, such a dish may be made with skim milk, and very much more than 3 cupfuls of the milk used. As the water evaporates, the dish becomes richer and richer in protein.

Oatmeal may be substituted for rice in the above-described pudding and adds somewhat to the protein value, though the quantity of cereal used is so small that this is not important.

Thin cereal-milk puddings, made by slowly cooking down until thick 10 or 12 parts of skim milk and 1 of rice, oatmeal, or similar cereal, may be used in place of cream with stewed fresh fruits or cooked dried fruits or baked apples.

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'43